

containing *six* sites that allow recombination activity; wherein recombination occurs between two *six* sites.

F1
Out
28. (Fifth Amendment) A method for mediating transgenic intramolecular recombination selected from deletions of DNA sequences located between two *six* sites and inversions of DNA sequences located between two *six* sites, in *in vitro* mammalian cells, comprising the steps of transfecting the mammalian cells with prokaryotic beta recombinase derived from *Streptococcus* and integrating DNA sequences containing *six* sites that allow recombination activity into chromatin of the mammalian cells; wherein recombination occurs between two *six* sites.

F2
33. (Fourth Amendment) A method according to claim 27, wherein two or more intramolecular recombination events involving different DNA sequences located between different *six* sites occur at the same time.

F3
35. (Twice Amended) A method according to claim 27, wherein an intramolecular deletion of DNA sequences located between directly oriented *six* sites is obtained.

36. (Twice Amended) A method according to claim 27, wherein an intramolecular inversion of DNA sequences located between inverted repeated *six* sites is obtained.

37. (Third Amendment) A method according to claim 27, wherein an intramolecular deletion of a DNA sequence located between two directly oriented *six* sites is obtained.

38. (Fourth Amendment) A method according to claim 27, wherein an intramolecular inversion of a DNA sequence located between two inversely oriented *six* sites is obtained.

39. (Fourth Amendment) A method according to claim 27, wherein an intramolecular deletion of a DNA sequence located between direct repeated DNA sequences containing *six* sites is obtained.

40. (Fourth Amendment) A method according to claim 27, wherein an intramolecular inversion of a DNA sequence located between inverted repeated DNA sequences containing *six* sites is obtained.

41. (Twice Amended) A method according to claim 35, wherein the DNA sequences are located within an extrachromosomal DNA substrate.

42. (Twice Amended) A method according to claim 36, wherein the DNA sequences are located within an extrachromosomal DNA substrate.

43. (Fourth Amendment) A method for catalyzing site-specific resolution of DNA sequences located between *six* sites in an extrachromosomal substrate transfected into an *in vitro* mammalian cell, comprising the step of catalyzing the site-specific resolution with prokaryotic beta recombinase derived from *Streptococcus*; wherein recombination occurs between *six* sites.

50. (Third Amendment) A method according to claim 66, wherein the *six* sites are wrapped on a nucleosome at several locations.

53. (Fourth Amendment) A method for mediating transgenic intramolecular recombination in *in vitro* mammalian cells, comprising the steps of transfecting mammalian cells with prokaryotic beta recombinase derived from *Streptococcus* and transfecting the mammalian cells with DNA sequences containing *six* sites that allow recombination activity; wherein recombination occurs between *six* sites and in the presence of cell factors comprising HMG1 chromatin-associated protein.

55. (Fourth Amendment) A method for mediating transgenic intramolecular recombination in chromatin structures of mammalian cells, comprising the steps of transfecting *in vitro* mammalian cells with prokaryotic beta recombinase derived from *Streptococcus* and integrating DNA sequences containing *six* sites that allow recombination activity into chromatin of the mammalian cells; wherein recombination occurs between *six* sites and in the presence of cell factors comprising HMG1 chromatin-associated protein.

56. (Twice Amended) A method according to claim 28, wherein an intramolecular deletion of DNA sequences located between direct repeated *six* sites is obtained.

57. (Twice Amended) A method according to claim 28, wherein an intramolecular inversion of DNA sequences located between inverted repeated *six* sites is obtained.

60. (Fourth Amendment) A method of mediating beta recombinase activity comprising the steps of transfecting *in vitro* mammalian cells with prokaryotic beta recombinase derived from *Streptococcus* and transfecting the mammalian cells with DNA sequences containing *six* sites that allow recombination activity; wherein recombination occurs between *six* sites.

61. (Twice Amended) A method according to claim 60, wherein recombination occurs in the presence of cell factors comprising HMG1 chromatin-associated protein.

64. (Amended) A method for mediating transgenic intramolecular recombination selected from deletions of DNA sequences located between two *six* sites and inversions of DNA sequences located between two *six* sites, in mouse cells, comprising the steps of transfecting mouse cells with prokaryotic beta recombinase derived from

Streptococcus and transfecting the mouse cells with DNA sequences containing *six* sites that allow recombination activity; wherein recombination occurs between two *six* sites.

65. (Amended) A method for mediating transgenic intramolecular recombination selected from deletions of DNA sequences located between two *six* sites and inversions of DNA sequences located between two *six* sites, in mouse cells, comprising the steps of transfecting mouse cells with prokaryotic beta recombinase derived from *Streptococcus* and integrating DNA sequences containing *six* sites that allow recombination activity into chromatin of the mouse cells; wherein recombination occurs between two *six* sites.

Please add claims 66-67 to read as follows:

--66. (New) A method for catalyzing site-specific resolution of DNA sequences located between *six* sites which are integrated into chromatin of an *in vitro* mammalian cell, comprising the step of catalyzing the site-specific resolution with prokaryotic beta recombinase derived from *Streptococcus*; wherein recombination occurs between two *six* sites.--

--67. (New) A method of mediating beta recombinase activity comprising the steps of transfecting *in vitro* mammalian cells with prokaryotic beta recombinase derived from *Streptococcus* and integrating DNA sequences containing *six* sites that allow recombination activity into chromatin of the mammalian cells; wherein recombination occurs between *six* sites.--